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मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 704 (1984): Crow-bars and Claw-bars [PGD 6: Earth, Metal And Wood Working Hand Tools]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR CROW-BARS AND CLAW-BARS

(Second Revision)

1. Scope — Covers the dimensional and other requirements for crow-bars and claw-bars.

2. Types — The bars shall be of the following types :

- a) Octagonal crow-bar (ordinary) with chisel and hammer ends,
- b) Octagonal crow-bar with bent chisel and point ends,
- c) Round crow-bar, packing and straightening,
- d) Round crow-bar (ordinary) with chisel and hammer ends,
- e) Round crow-bar with chisel and claw ends,
- f) Round crow-bar with chisel and point ends,
- g) Square crow-bar with chisel and hammer ends,
- h) Claw-bar, and
- j) Fireman's crow-bar.

3. Shapes, Dimensions and Tolerances

3.1 Shapes and Dimensions — The general shapes and dimensions of different types of crow-bars and claw-bars shall be as shown in Tables 1 to 9.

3.2 Tolerances — The permissible tolerances on width across flats and diameters of bars shall be as specified in IS : 3739-1972 'Dimensional tolerances for carbon and alloy constructional steel products'. The tolerances on length shall be $\pm \frac{50}{25}$ mm. Other dimensions are recommendatory and are for the guidance of the manufacturers.

4. Mass — The mass of the bars as given in respective tables is recommendatory and is for the guidance of the manufacturers and the purchasers.

5. Material — Suitable quality steel meeting the requirements as laid down in 6 and 8.

Suitable Example :

Steel designation T-60 of schedule VI of IS : 1570-1961 'Schedules for wrought steels for general engineering purposes', with maximum phosphorous and sulphur content of 0.05 percent each.

6. Hardness — The bars shall be heat treated to obtain a minimum hardness value of 320 HV. The test point shall be anywhere on the working end or on the straight portion nearest to the working end.

7. Manufacture and Finish

7.1 The bars shall be forged clean and in one piece from either octagonal, round or square bars as the case may be. These shall be reasonably well shaped and free from flaws, seams or other defects.

7.2 Cutting ends of the bars may be rounded off and finished ground.

8. Tests

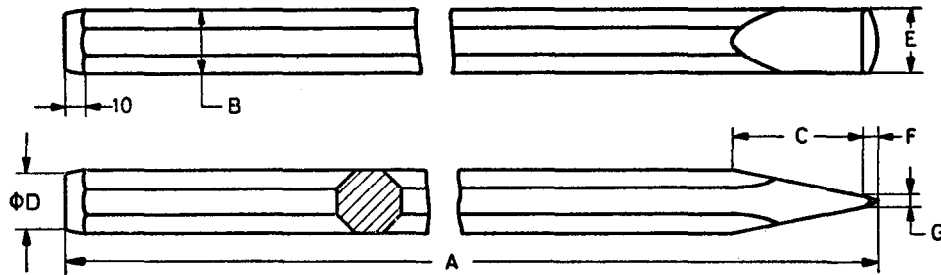
8.1 Drop Test — The bar shall be held vertical with the working end downward at a height of 600 mm over a block of grey cast iron of at least 150 mm in thickness and freely dropped on the block. This shall be repeated five times. Where both the ends are the working ends, the test shall be carried on separately for both ends. The ends shall not show any sign of fracture or deformation after the test.

8.1.1 The above test shall not be applicable to claw end of the round crow-bars with chisel and claw ends (see Table 5).

TABLE 1 DIMENSIONS FOR OCTAGONAL CROW-BARS (ORDINARY) WITH CHISEL AND HAMMER ENDS

(Clause 3.1)

All dimensions in millimetres.



Nominal Mass kg ≈	Length A	Width Across Flats B	Length of Chisel End C	Dia- meter of Hammer End D	Ground Portion			Static Load Test	
					Width E	Cutting Edge F	Thickness at Start of Cutting Edge G	Distance Between Grip and Loading Point P*	Load W*
3	1 000	22	65	20	22	6	5	710	68
4	1 000	25	70	22	25	6	5	790	91
5	1 000	29	70	25	30	8	6	760	136
6	1 000	32	75	30	32	8	6	790	181
5	1 650	22	65	20	22	6	5	1 450	34
7	1 650	25	70	22	25	6	5	1 450	45
9	1 650	29	70	25	30	8	6	1 450	68
11	1 650	32	75	30	32	8	6	1 450	91

Note — Shape of the cutting edge, oval (see figure above) or straight cut, shall be as agreed between the manufacturer and the purchaser.

*See Fig. 1 in 8.2.

8.2 Static Load Test — The bar shall be rigidly gripped horizontally on the straight portion nearest to the working end and a specified load is suspended at the free end for half a minute (see Fig. 1). The weight to be suspended and the distance between the grip and the loading point for different types of bars shall be as specified in the respective tables. The gripping tools may be in the form of a pair of blocks either with straight face or shaped partially or fully to the shape of the bar itself. The maximum length of the gripped portion shall not exceed 75 mm. The bar shall show no sign of distortion, damage or permanent set over 8 mm.

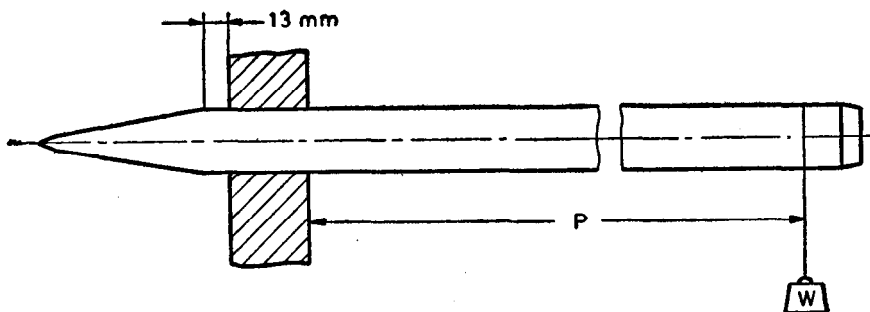
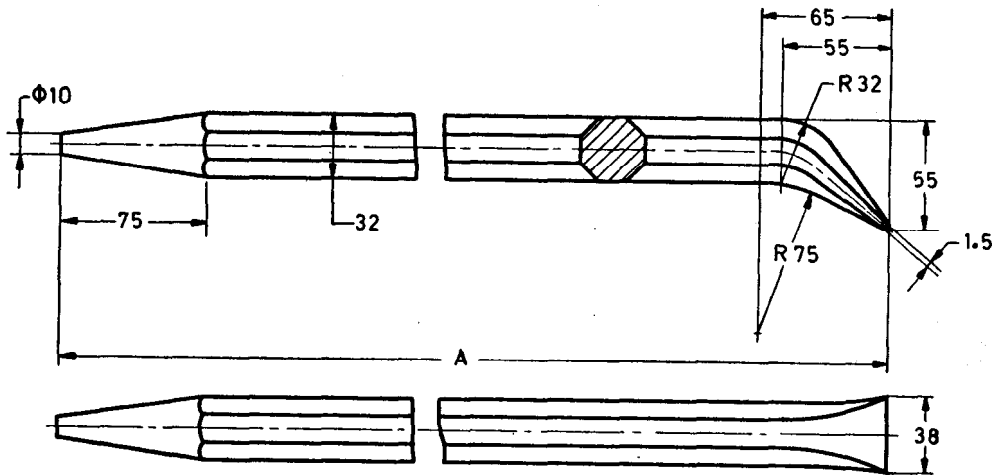


FIG. 1 STATIC LOAD TEST ARRANGEMENT

TABLE 2 DIMENSIONS FOR OCTAGONAL CROW-BARS WITH BENT CHISEL AND POINT ENDS
(Clause 3.1)

All dimensions in millimetres.



Nominal Mass kg ≈	Length A	Static Load Test	
		Distance Between Grip and Loading Point P*	Load W* kg
10	1 520	1 240	113
11	1 680	1 300	113
12	1 830	1 550	91

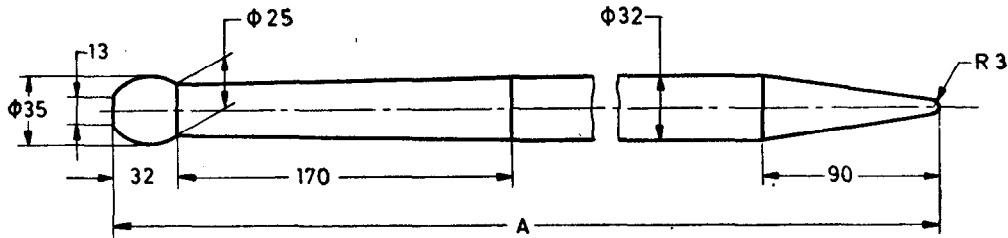
*See Fig. 1 in 8.2.

8.3 Falling Weight Test — When required by the purchaser, the claw-bars shall also be subjected to the falling weight test. The claws of the bar shall be placed about 13 mm under the head of a standard dog spike rigidly placed and so located as to hold the bar in the horizontal position. A weight of 64 kgf shall be dropped from a height of 300 mm at a point of about 150 mm from the free end. At the end of the test, there shall not be any crack in the claws or any permanent set at the claws or in the bar.

**TABLE 3 DIMENSIONS FOR ROUND CROW-BARS,
PACKING AND STRAIGHTENING**

(Clause 3.1)

All dimensions in millimetres.



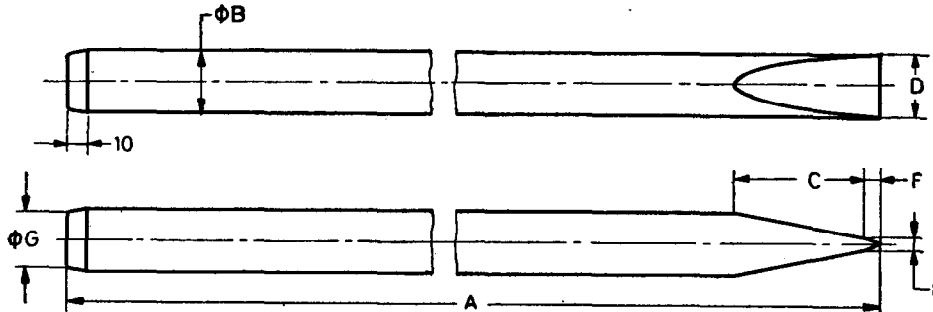
Nominal Mass kg ≈	Length A	Static Load Test	
		Distance Between Grip and Loading Point P*	Load W* kg
9	1 520	1 300	91
10	1 680	1 450	91

*See Fig. 1 in 8.2.

**TABLE 4 DIMENSIONS FOR ROUND CROW-BARS WITH
CHISEL AND HAMMER ENDS**

(Clause 3.1)

All dimensions in millimetres.



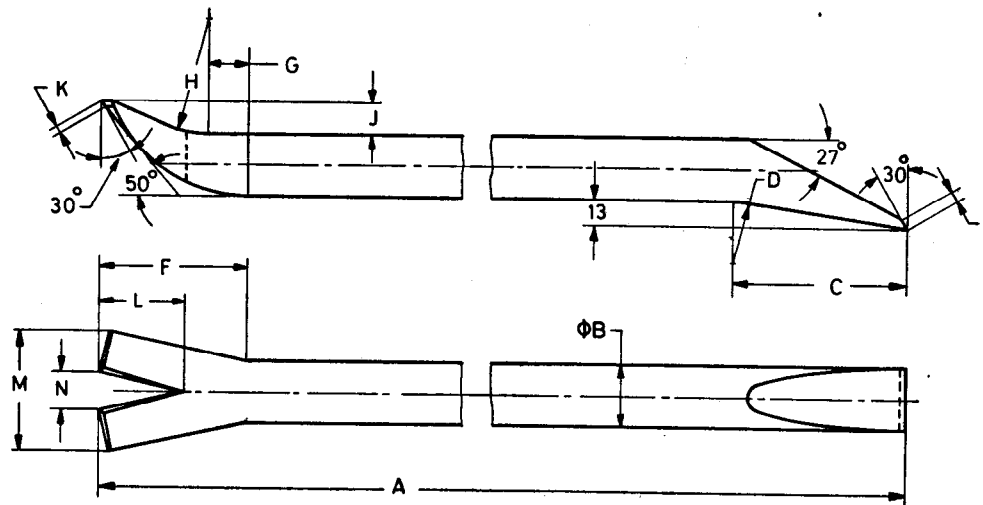
Nominal Mass kg ≈	Length A	Dia- meter B	Length of Chisel End C	Width of Ground Portion D	Thickness at Start of Cutt- ing Edge E	Cutting Edge F	Dia- meter of Hammer End G	Static Load Test	
								Distance Between Grip and Load- ing Point P*	Load W* kg
5	1 525	22	64	22	5	6	19	1 320	35
6	1 525	25	70	25	5	6	22	1 450	45
6	1 830	20	64	20	5	6	19	1 320	35
7	1 830	25	70	25	5	6	22	1 450	45
9	1 830	28	70	28	6	8	25	1 400	68
10	2 440	25	70	25	5	6	22	1 700	35
11	1 830	30	76	30	6	8	29	1 420	91
12	2 440	28	70	28	6	8	25	2 060	45
15	2 440	32	76	32	6	8	29	1 900	68

*See Fig. 1 in 8.2.

TABLE 5 DIMENSIONS FOR ROUND CROW-BARS WITH CHISEL AND CLAW ENDS

(Clause 3.1)

All dimensions in millimetres.



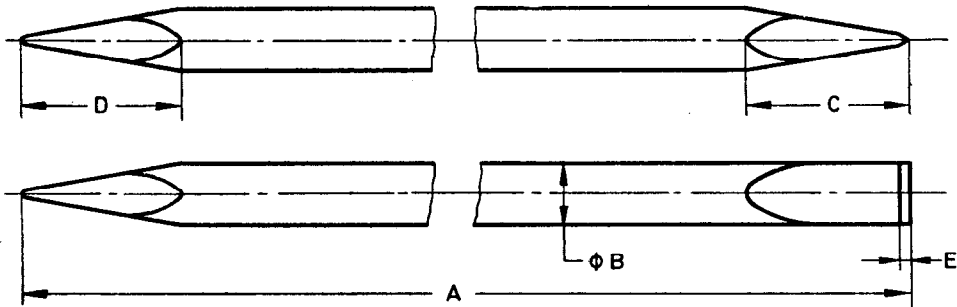
Nominal Mass kg ≈	Length A	Dia- meter B	Length of Chisel End C	D	Width of Cutting End E	F	G	H	J	K	Length of Each Claw L	Total Width at Claw End M	Gap at Claw End N	Static Load Test	
														Distance Between Grip and Loading Point P*	Load W* kg
3	685	29	75	25	5	64	18	48	13	2.5	32	51	16	460	205
5	1 070	29	75	25	6	70	19	51	13	3.0	38	51	16	840	113
8	1 250	32	90	32	6	76	21	57	16	3.0	44	64	19	1 016	36
14.5	1 680	38	108	38	8	89	25	76	16	4.0	51	64	22	1 320	113

*See Fig. 1 in 8.2.

TABLE 6 DIMENSIONS FOR ROUND CROW-BARS WITH CHISEL AND POINT ENDS

(Clause 3.1)

All dimensions in millimetres.



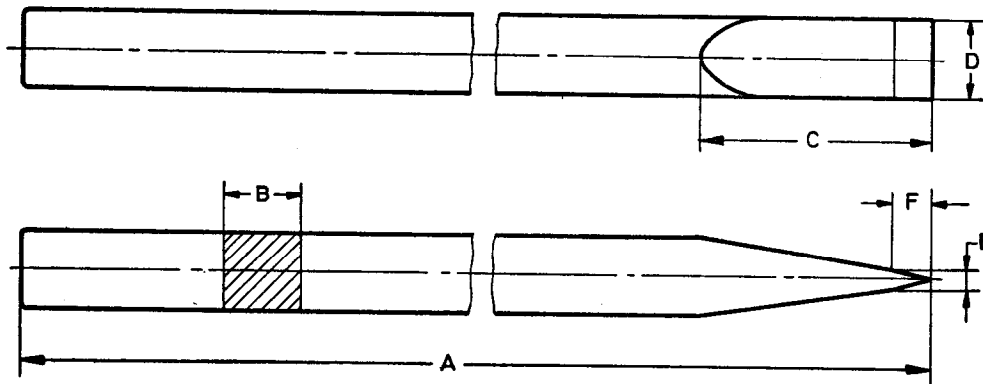
Nominal Mass kg ≈	Length A	Dia- meter B	Length of Chisel End C	Length of Pointed End D	Cutting Edge E	Static Load Test	
						Distance Between Grip and Loading Point P*	Load W* kg
7	1 200	32	86	82	5	900	144
14.25	1 650	37	108	86	5	1 320	111

*See Fig. 1 in 8.2.

TABLE 7 DIMENSIONS FOR SQUARE CROW-BAR WITH CHISEL AND HAMMER ENDS

(Clause 3.1)

All dimensions in millimetres.

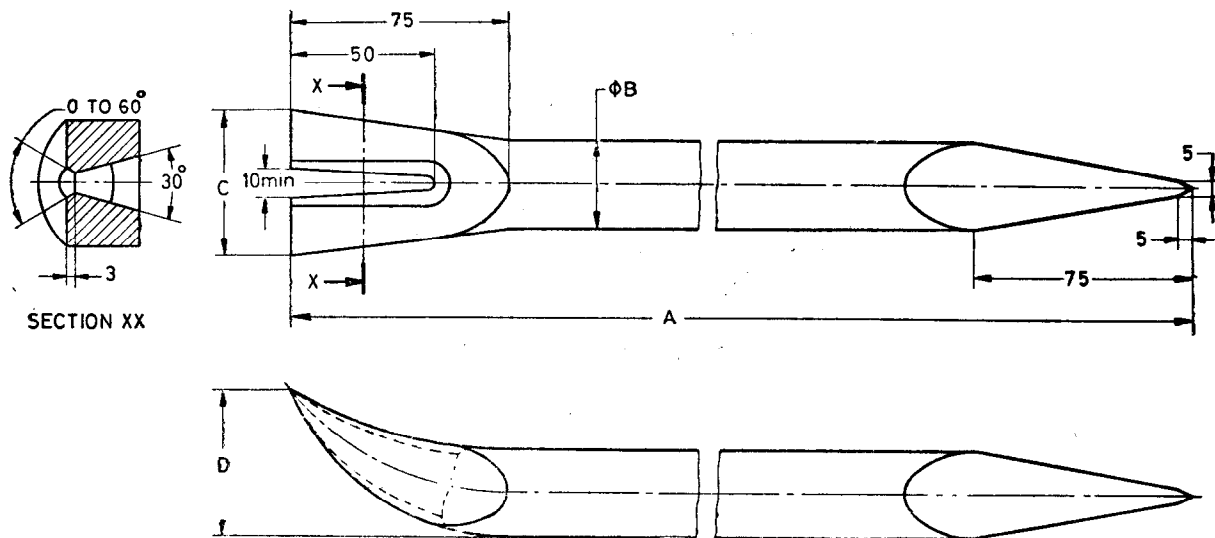


Nominal Mass kg ≈	Length A	Square Size B	Length of Chisel End C	Width of Ground Portion D	Thickness at Start of Cutting Edge E	Cutting Edge F	Static Load Test	
							Distance Between Grip and Loading Point P*	Load W* kg
5.3	1 650	20	60	20	5	10	1 450	25

*See Fig. 1 in 8.2.

TABLE 9 DIMENSIONS FOR FIREMAN'S CROW-BARS
(Clause 3.1)

All dimensions in millimetres.



Nominal Mass kg ≈	Length A	Diameter B	C	D	Static Load Test	
					Distance Between Grip and Loading Point p*	Load W* kg
3.5	700	30	50	50	450	205
6.5	1 200	30	50	50	1 000	136
9	1 500	35	55	55	1 240	113
13	1 800	35	55	55	1 550	91

*See Fig. 1 in 8.2.

13. Sampling — Unless otherwise agreed to between the buyer and the seller, the procedure given in IS : 2500 (Part 1)-1973 'Sampling inspection tables : Part 1 Inspection by attributes and by count of defects (first revision)' may be followed for sampling inspection. The sampling plans for various characteristics shall be according to 13.1 and 13.2.

13.1 For inspection of shapes, dimensions, manufacture and finish, single sampling plan with inspection level III and acceptable quality level (AQL) of 4 percent given in Tables 1 and 2 of IS : 2500 (Part 1)-1973 shall be adopted.

13.2 For inspection of hardness and other tests, single sampling plan with inspection level I and acceptable quality level (AQL) of 6.5 percent, given in Tables 1 and 2 of IS : 2500 (Part 1) - 1973 shall be adopted.

EXPLANATORY NOTE

This standard was first published in 1957. The first revision, issued in 1968, was taken up to express the dimensional and other requirements in metric units.

This revision has been taken up in order to include square type crow-bars, and fireman's crow-bars. The mass of the crow bars has been made recommendatory, since the length and width across flats or diameter of the crow-bars have been tolerated in accordance with the modern manufacturing practices.

AMENDMENT NO. 1 NOVEMBER 1986

TO

IS:704-1984 SPECIFICATION FOR CROW-BARS AND
CLAW-BARS

(Second Revision)

*(Page 1, clause 8.1, line 3) - Substitute
'three times' for 'five times'.*

(EDC 12)

AMENDMENT NO. 2 MAY 1996
TO
IS 704 : 1984 SPECIFICATION FOR CROW-BARS
AND CLAW-BARS

(Second Revision)

(Page 1, clause 3.2, line 2) — Substitute 'IS 3739 : 1987 Dimensional tolerances for carbon and alloy constructional products (*first revision*)' for 'IS : 3739 - 1972 Dimensional tolerances for carbon and alloy constructional steel products'.

(Page 7, clause 10, line 2) — Substitute 'IS 1387 : 1993 General requirements for the supply of metallurgical materials (*second revision*)' for 'IS : 1387 - 1967 General requirements for the supply of metallurgical materials (*first revision*)'.

(Page 8, clause 13, line 2) — Substitute 'IS 2500 (Part 1) : 1992 Sampling inspection procedures : Part 1 Attribute sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection (*second revision*)' for 'IS : 2500 (Part 1) - 1973 Sampling inspection tables : Part 1 Inspection by attributes and by count of defects (*first revision*)'.

(Page 8, clauses 13.1 and 13.2, line 2) — Substitute 'Tables I and II-A of IS 2500 (Part 1) : 1992' for 'Tables 1 and 2 of IS : 2500 (Part 1) - 1973'.

(PE 06)